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Perceived Implementation of the Office of Alcoholism and Substance Abuse Services (OASAS) Tobacco-Free Regulation in NY State and Clinical Practice Behaviors to Support Tobacco Cessation: A Repeated Cross-Sectional Study

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Abstract

This study measured substance use disorder clinicians' perceptions regarding the implementation extensiveness of the Office of Alcohol and Substance Abuse Services (OASAS) tobacco-free regulation, passed in New York State in July of 2008, at three time-points and across organizations with varying characteristics. Repeated cross-sectional data were collected from clinicians approximately 4 months pre-regulation (Time 0, $N = 362$), 10–12 months postregulation (Time 1, $N = 462$), and 20–24 months post-regulation (Time 2, $N = 509$). Clinician perceptions of implementation extensiveness (number of required policies in effect), use of tobacco cessation-related intake procedures, and use of guideline recommended counseling for treating tobacco dependence are significantly greater at Time 1 and Time 2 compared to Time 0. Additionally, differences are found in perceived implementation extensiveness based on hospital-based status, profit status, and level of care offered, although the pattern of effects differed some over the three time-points under investigation.

Keywords

implementation; service delivery; tobacco cessation; evaluation; longitudinal study; substance abuse treatment

Perceived Implementation of the Office of Alcoholism and Substance Abuse Services (OASAS) Tobacco-Free Regulation in NY State and Clinical

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Practice Behaviors to Support Tobacco Cessation: A Repeated Cross-Sectional Study

The knowledge, adoption, and implementation of evidence-based practices (EBPs) for tobacco cessation is low in substance use disorder (SUD) treatment organizations across the U.S. (Knudsen & Studts, 2010; Knudsen, Studts, & Studts, 2012; Rothrauff & Eby, 2011a, 2011b). For example, Knudsen and colleagues (Knudsen & Studts, 2010; Knudsen et al., 2012) showed only moderate implementation of tobacco-related interventions among a national sample of SUD counselors. In addition, Rothrauff and Eby (2011a) found that only between 11% and 27% of SUD counselors reported that their organizations have pharmacotherapies available to treat tobacco use (e.g., nicotine replacement therapy/NRT, bupropion) even though tobacco cessation medications are considered viable pharmaceutical EBPs for helping patients with tobacco cessation (Fiore et al., 2008). In addition, restrictive tobacco policies such as the requirement to provide tobacco cessation services to SUD patients and the complete prohibition of tobacco products are rare (e.g., Friedmann, Jian, & Richter, 2008; Hunt, Cupertino, Garrett, Friedmann, & Richter, 2012). This is a missed opportunity considering the high rates of tobacco use among patients in SUD treatment (Centers for Disease Control and Prevention, 2007) and improved patient outcomes linked to tobacco cessation efforts (e.g., Baca & Yahne, 2009; Fiore et al., 2008).

In an unparalleled decision, the New York State (NYS) Office of Alcohol and Substance Abuse Services (OASAS) implemented a stringent and mandatory tobacco-free regulation in all of its 1,419 state-funded or state-certified SUD treatment programs as of July, 2008 (NY OASAS, n.d.). The OASAS tobacco-free regulation requires all programs to be 100% tobacco-free. The regulation applies to patients, visitors, volunteers, and employees and prohibits tobacco in indoor facilities, outdoor grounds, and vehicles owned, operated, or leased by the SUD treatment organization. It also prohibits patients, visitors, volunteers, and employees from bringing tobacco products into the treatment program. Moreover, SUD treatment organizations are required to offer tobacco cessation treatment (NY OASAS, n.d.). To date, no other state has followed suit with a similarly extensive state-wide regulation. As such, this study provides a unique opportunity to examine efforts to institute tobacco-related regulatory change in SUD treatment.

The NYS Experience of Going Tobacco-Free

To date, three published studies have examined various outcomes associated with the OASAS tobacco-free regulation. Brown and colleagues (2012) examined administrator attitudes toward the integration of tobacco cessation into SUD treatment in NYS before and after the OASAS tobacco-free regulation. They found that according to administrators, tobacco cessation services, tobacco pharmacotherapy, tobacco screening, and support for tobacco-free campus policies increased over time. Administrators also reported that although patient resistance was a major barrier, it decreased over time and patient admissions remained stable. Moreover, in response to a general question regarding the implementation of the OASAS regulation, all administrators reported complete compliance after the passage of the regulation.

Guydish et al. (2012) also collected survey data pre- and post-regulation in 10 randomly selected SUD treatment programs. Staff and patients were asked questions about smoking knowledge, attitudes, and practices (both in terms of services offered to patients who smoke and the availability of tobacco cessation services in the program). Significant gains were found in tobacco-related attitudes, knowledge, and practices over time, but they varied considerably by program type. The most positive change was found in methadone programs, where staff reported greater use of tobacco cessation-related practices and patients reported

more favorable attitudes toward the treatment of tobacco dependence and received more tobacco treatment services. By contrast, counselors in residential programs actually reported lower self-efficacy for addressing tobacco dependence and less use of tobacco cessation practices with patients post-regulation. Similarly, residential patients reported receiving fewer services aimed at tobacco dependence and held less favorable attitudes toward tobacco treatment over time. Notwithstanding these challenges in residential programs, compared to those seeking treatment in outpatient programs, residential patients were 5 times more likely to quit smoking while in treatment. Interestingly, no changes were found in outpatient programs over time, presumably because the regulation required fewer changes compared to other levels of care.

Eby et al. (2012) also examined staff reactions to the OASAS regulation in a qualitative study of 261 counselors and 80 clinical supervisors working in 50 different SUD treatment programs. Both positive and negative outcomes of the OASAS regulation were reported. The most frequently reported positive outcomes were behavior changes (e.g., reduced tobacco use, increased intentions to quit smoking) and knowledge gains (e.g., greater awareness of the danger of tobacco use, knowing where to obtain assistance with tobacco cessation). However, negative outcomes were also uncovered. The most frequently reported negative consequence was the reinforcement of patients' SUD-related behaviors such as lying about tobacco and "dealing" cigarettes. These findings highlight the complexities associated with the implementation of tobacco-free regulations in SUD treatment.

The current study builds on and expands published research on the OASAS tobacco-free regulation in three primary ways. First, we examine perceived implementation extensiveness of the OASAS tobacco-free regulation and clinical practice behaviors to support tobacco cessation over three time points (4 months pre-regulation, 10–12 months post-regulation, 20–24 months post-regulation). Not only does this represent a longer time-frame than previous research, it allows us to go beyond pre-post regulation differences to explore whether any initial differences observed at 10–12 months post-regulation are sustained over time. Second, we provide the most detailed examination of perceived implementation extensiveness of the OASAS tobacco-free regulation to date by focusing on perceived compliance with all of the specific regulatory elements. This avoids the pitfall of treating implementation as an "all or none" phenomenon (Fixsen, Naoom, Blasé, Friedman, & Wallace, 1995) and allows for the possibility that some aspects of the regulation may be implemented whereas others may not. Third, implementation extensiveness data were collected from clinicians rather than program administrators. This is important because frontline staff is essential to the success of implementation efforts because one of the main challenges of any organizational change is staff buy-in (Knudsen et al., 2012; Williams et al., 2005). Clinical staff is also in the best position to judge whether or not implementation has occurred because policy changes affect their day-to-day behavior on the job, such as engaging in clinical practice behaviors to support tobacco cessation.

The specific objectives of the current study are to compare clinician perceptions of implementation extensiveness (number of required policies that are in effect) and the reported use of two clinical practice behaviors to support tobacco cessation (tobacco cessation-related intake procedures, guideline recommended counseling to treat tobacco dependence) pre-regulation, and at two time points post-regulation. In addition, because there is initial evidence that the level of care associated with the treatment program relates to the outcomes of the OASAS tobacco-free regulation (Guydish et al., 2012), we explore whether clinician perceptions of implementation extensiveness and clinical practice behaviors to support tobacco cessation differ at each time point based on three organizational characteristics: hospital-based status, profit status, and level of care offered.

The OASAS Tobacco-Free Regulation and Clinical Practice Behaviors to Support Tobacco Cessation

In addition to banning the use and possession of tobacco products, the regulation requires that treatment modalities be established for patients who use tobacco products. As such, the OASAS tobacco-free regulation is consistent with many of the Public Health Service (PHS) guidelines for clinicians, health care administrators, and tobacco treatment specialists on how to adopt, implement, and support tobacco cessation efforts (Fiore et al., 2008). Therefore, in addition to examining perceptions of implementation extensiveness, the current study investigated clinicians' reported use of two specific clinical practice behaviors that support tobacco cessation. These include the use of the tobacco cessation-related intake procedures (ask patients about tobacco use, advise them to quit, assess and increase willingness to quit) and guideline recommended counseling to help patients quit their tobacco use (e.g., deal with cravings, understand the risks of continued tobacco use). Based on previous research on the OASAS tobacco-free regulation and the guidelines set forth by OASAS, we propose the following:

Hypothesis 1: Clinicians' perceived implementation extensiveness of the regulation will be higher at Time 1 (10–12 months post-regulation) and Time 2 (20–24 months post-regulation) compared to Time 0 (4 months pre-regulation).

Hypothesis 2: Clinicians' reported use of the tobacco cessation-related intake procedures will be higher at Time 1 (10–12 months post-regulation) and Time 2 (20–24 months post-regulation) compared to Time 0 (4 months pre-regulation).

Hypothesis 3: Clinicians' reported use of guideline recommended counseling to treat tobacco dependence will be higher at Time 1 (10–12 months post-regulation) and Time 2 (20–24 months post-regulation) compared to Time 0 (4 months pre-regulation).

We also explore differences in perceived implementation extensiveness and clinical practice behaviors to support tobacco cessation post-regulation. Although the OASAS tobacco-free regulation is state-mandated, research found that other types of service offering change over time in SUD treatment settings (e.g., Ducharme, Knudsen, & Roman, 2006). Moreover, implementation is a process rather than a discrete event that evolves over time and can be painstakingly slow (Fixsen et al., 1995). This makes it important to determine whether there are changes in the provisions set forth by the OASAS tobacco-free regulations post-regulation over time, as well as parallel changes in clinical practice behaviors to support tobacco cessation.

Research Question 1: Are there differences in clinicians' perceived implementation extensiveness of the regulation, reported use of the tobacco cessation-related intake procedures, and reported use of guideline recommended counseling at Time 1 (10–12 months post-regulation) compared to Time 2 (20–24 months post-regulation)?

Differences Based on Organizational Characteristics

Differences in perceived implementation extensiveness of the OASAS tobacco-free regulation and clinical practice behaviors to support tobacco cessation are also explored based on three organizational characteristics: hospital-based status, profit status, and level of care offered (inpatient only, outpatient only, or both inpatient and outpatient). These comparisons are conducted at both pre-regulation (Time 0) and post-regulation (Time 1 and Time 2). The rationale for taking this approach is that any pre-regulation differences we find may diminish over time as the regulation goes into effect.

The limited research on the relationship between hospital-based status and the implementation of EBPs for tobacco cessation has yielded some seemingly contradictory

findings. Knudsen and Studts (2011) found that medically-oriented settings (hospital settings, programs with access to physicians) report greater sustained adoption of NRT compared to less medically-oriented settings. In a latter study, Knudsen et al. (2012) found no differences in counselor use of guideline recommended counseling for tobacco dependence based on hospital-based status. This is consistent with evidence that patients in primary care settings do not routinely receive counseling or other interventions to assist with tobacco dependence, even though physicians are generally knowledgeable about the risks of tobacco use (e.g., McIlvain, Backer, Crabtree, & Lacy, 2002).

The second organizational characteristic we explored is profit status. The literature characterizes for-profit organizations as competitive and oriented toward financial profit (Tudway & Pascal, 2006) whereas non-profit organizations are typically described as mission-driven, with a focus on assisting those in need of some service (Gunn, 2004). While these characterizations may not reflect the philosophy or operating procedures of all non-profit and for-profit SUD treatment organizations, it suggests that there may be differences across these two sectors. For instance, non-profits may be motivated to incorporate tobacco cessation into treatment as usual given the well-known negative health consequences of tobacco use among SUD patients. However, practitioners in non-profit organizations tend to be less informed about innovations, slower to adopt new practices, and have fewer financial resources than their for-profit counterparts (Jaskyte & Dressler, 2005), suggesting that non-profit SUD treatment organizations may be less likely to integrate tobacco cessation efforts into treatment planning. We are aware of only one study that examined the implementation of tobacco cessation counseling between for-profit and non-profit SUD treatment centers, finding no significant differences (Knudsen et al., 2012).

Finally, there may be differences based on the level of care offered at the SUD treatment program. There is some evidence that patients have higher motivation to quit their tobacco use when seeking inpatient, as opposed to outpatient, treatment (Irving, Seidner, Burling, Thomas, & Brenner, 1994). This is consistent with Guydish et al.'s (2012) findings that after the passage of the OASAS tobacco-free regulation, residential patients were far more likely to quit smoking while in treatment compared to those seeking other types of treatment. It has also been suggested that residential treatment settings offer a more intensive, structured treatment environment focused on recovery, where peer and staff support may be more readily available to support tobacco cessation (Williams et al., 2005). Guydish et al. (2012) did not find support for this argument; residential patients reported receiving fewer tobacco dependence services following the passage of the OASAS tobacco-free regulation. Moreover, in a national study of SUD treatment organizations, Knudsen et al. (2012) found no differences in the implementation of counseling for smoking based on level of care offered.

Taken together the literature on how organizational characteristics may relate to tobacco cessation practices in SUD treatment organization is limited, although there is evidence to suggest that organizational characteristics may be important to explore further. As such, we propose a second research question:

Research Question 2: Are there differences in clinicians' (a) perceptions of implementation extensiveness of the regulation, (b) reported use of the tobacco cessation-related intake procedures, and (c) reported use of guideline recommended counseling at Time 0 (4 months pre-regulation), at Time 1 (10–12 months post-regulation), and at Time 2 (20–24 months post-regulation) based on hospital-based status, profit status, or level of care offered?

METHOD

Study Design and Sample

Data for the current study were obtained from Managing Effective Relationships in Treatment Services (MERITS II), a larger research project that longitudinally examined the effects of the OASAS tobacco-free regulation on employees in SUD treatment programs in NYS. Project MERITS II was funded by the National Institute on Drug Abuse (NIDA) in response to a program announcement calling for health services research using NIDA's Clinical Trails Network (CTN) as a research platform. At the time of recruitment, the CTN had two New York "nodes" (NY City and Long Island), which are partnerships between a research center and a number of SUD treatment organizations. Seven of 10 eligible CTN-affiliated treatment organizations agreed to participate. However, this did not yield sufficient clinician data to meet our sample size requirements. Therefore, we extended recruitment to SUD treatment organizations outside of the CTN by relying on program administrator contacts at other SUD treatment organizations in NYS. The lead investigator personally contacted all identified leads by email or phone and explained the aims of the study. Through this expanded recruitment process we obtained a final sample of 14 SUD treatment organizations at Time 0, 16 at Time 1, and 17 at Time 2. For some treatment organizations only one program was surveyed, whereas for other treatment organizations, multiple programs were surveyed (*Range* = 1 program to 10 programs, *Mode* = 1).

The data for this study were collected at three time-points starting in 2008: approximately four months before the OASAS tobacco-free regulation went into effect (Time 0), approximately 10–12 months after the regulation went into effect (Time 1), and approximately 20–24 months after the regulation went into effect (Time 2). Eligible treatment organizations had to be located in the community (i.e., prison-based programs, driving-under-the-influence schools, Veteran's Health Administration programs were excluded), and offer SUD counseling services. All procedures were approved by the Institutional Review Board at the University of Georgia.

At all time-points, trained research assistants traveled on-site to administer paper-and-pencil surveys to SUD clinicians and program administrators during regular business hours. To be eligible for participation, clinicians had to have direct contact with patients in a therapeutic relationship (i.e., individual counseling, group counseling, or both). Clinician surveys were completed in group sessions proctored by a member of the research team. A total of 362 clinicians completed surveys at Time 0 (74% response rate), 462 clinicians at Time 1 (74% response rate), and 509 clinicians at Time 2 (83% response rate). Program administrators at each SUD treatment organization completed surveys on their own and returned them to the research assistants. The response rate from program administrators was 100% at both Time 0 and Time 1, and 88% at Time 2. Treatment organizations were compensated for employees' time off the clock to complete surveys.

Program administrators provided data on their organizations' *profit status* (0 = *non-profit*, 1 = *for-profit*), *hospital-based status* [0 = *non-hospital-based* (free-standing unit not on a hospital campus), 1 = *hospital-based* (freestanding unit on a hospital campus/unit within a psychiatric hospital/unit within a general or other hospital)], and level of care offered [1 = *outpatient only services* (i.e., *adolescent outpatient detoxification*, *adolescent intensive outpatient*, *adolescent outpatient*, *adolescent aftercare*, *adult outpatient detoxification*, *adult intensive outpatient*, *adult outpatient non-methadone*, *adult methadone maintenance*, *adult aftercare*), 2 = *inpatient only services* (i.e., *adolescent inpatient*, *adolescent residential*, *adult inpatient detoxification*, *adult inpatient*, *adult residential*, *inpatient psychiatric*), 3 = *both outpatient and inpatient services*] at each time point (Time 0, Time 1, Time 2). Administrators reported that at Time 0, Time 1, and Time 2, 85.7%, 81.3%, and 80.0% of

the treatment organizations operated as non-profit entities, respectively. At Time 0, Time 1, and Time 2, 71.4%, 75.0%, and 71.4% of the treatment organizations were not hospital-based, respectively. In terms of level of care, at Time 0, Time 1, and Time 2, organizations were most likely to offer outpatient only care (53.9%, 43.8%, and 46.7%, respectively). Both outpatient and inpatient care was reported as 23.1% at Time 0, 37.5% at Time 1, and 26.7% at Time 2. Finally, inpatient only care was reported as 23.1% at Time 0, 18.8% at Time 1, and 26.7% at Time 2.

Sample representativeness—Using the 2006 SAMHSA facility locator and National Survey of Substance Abuse Treatment Services (N-SSATS) database, we found that our sample of participating programs was similar to the aggregate characteristics of all NYS treatment programs regarding a primary focus on SUDs and providing detoxification services, methadone maintenance, hospital inpatient services, short-term residential services, long-term residential services, services for adolescents, functioning as a halfway house, and treating criminal justice patients (a full report is available upon request from the first author).

Measures

Clinicians' reported their perceptions of *implementation extensiveness of the OASAS tobacco-free regulation* pertaining to patients, visitors, and employees at Time 0, Time 1, and Time 2. A 17-item scale was developed based on the 9 regulatory elements outlined in the Tobacco-Free Services Title 14 NYCRR Part 856 issued by OASAS (NY OASAS, n.d.). Several of the regulatory elements refer to more than one stakeholder (e.g., Section 856.5 (a) (2) "prohibits staff, family members, and visitors from bringing tobacco products and paraphernalia to the service"; Section 856.5 (a) (3) "requires all patients, staff, volunteers, and visitors be informed on the tobacco-free policy..."). For these regulatory elements separate items were created because, for example, the regulation may be implemented for staff but perhaps not for visitors. The measure included 6 items specific to *patient policies and strategies* [e.g., "Treatment modalities are established for patients who smoke (e.g., nicotine replacement, counseling)"], three items referred to *visitor policies and strategies* (e.g., "Visitors are prohibited from bringing tobacco products and paraphernalia into the facility"), and eight items concerned *employee policies and strategies* (e.g., "Tobacco and nicotine prevention and education programs are available for employees"). Response options were 0 = *no* and 1 = *yes*. The overall scale was developed by summing the number of *yes* responses to represent an index of implementation extensiveness (i.e., number of regulatory elements implemented).

Two clinical practice behaviors to support tobacco cessation were also assessed based on Fiore et al.'s (2008) *Clinical Practice Guideline for Treating Tobacco Use and Dependence*. Clinicians reported their use of *tobacco cessation-related intake procedures* using Knudsen and Studts (2010) 5-item measure (e.g., "How often do you personally ask new patients whether they are current tobacco users?"). Response options were 1 = *never*, 2 = *not often*, 3 = *occasionally*, 4 = *most of the time*, 5 = *always*. The scale was created by calculating the mean across the five items ($\alpha = .85$ at Time 0, $\alpha = .84$ at Time 1, $\alpha = .82$ at Time 2).

Clinicians also reported their use of *guideline recommended counseling for treating tobacco dependence* with an 8-item measure based on Fiore et al. (2008). Items included helping patients develop a quit plan, providing self-help materials, referral to a quit-line, recognizing triggers for tobacco use, coping skill development to deal with cravings, understanding the risks of continued tobacco use, encouragement for patients' quit efforts, and offering positive feedback on progress toward tobacco cessation goals (Fiore et al., 2008). Response options were 1 = *never*, 2 = *not often*, 3 = *occasionally*, 4 = *most of the time*, 5 = *always*.

The scale was created by calculating the mean across the eight items ($\alpha = .95$ at Time 0, $\alpha = .92$ at Time 1, $\alpha = .93$ at Time 2).

Finally, clinicians' provided demographic characteristics such as gender (0 = *male*, 1 = *female*), recovery status (0 = *not in recovery*, 1 = *in recovery*), level of education (coded as 0 = *less than master's degree*, 1 = *master's degree or higher*), race/ethnicity (coded as 0 = *racial/ethnic minority*, 1 = *Caucasian*), marital status (coded as 0 = *not married*, 1 = *married*), certification in SUD counseling (0 = *no*, 1 = *yes*), and smoking status (coded as 0 = *never smoker*, 1 = *former smoker*, 2 = *current smoker*). Additionally, clinicians' noted their age in years and their annual income in dollars.

Data Analyses

We used a repeated cross-sectional design because our interest was in obtaining a snapshot of the SUD treatment workforce at each time point, not tracking specific clinicians over time. Mixed method models were conducted that account for the repeated cross-sectional design (i.e., the possibility that the same clinician participated at all time-points while others participated only once or twice) and the nesting of clinicians within organizations to examine whether there are differences in clinicians' perceptions of implementation extensiveness (Hypothesis 1), reported use of the tobacco cessation-related intake procedures (Hypothesis 2), reported use of guideline recommended counseling (Hypothesis 3) between Time 0 and Time 1, and whether there are differences in these three outcomes between Time 1 and Time 2 (Research Question 1). General linear models were conducted to explore the research question regarding differences based on an organization's hospital-based status, profit status, and level of care offered (Research Question 2). All mean values in Tables 2–5 represent least square means (LSM) (adjusted for nesting of clinicians within organizations). Post-hoc tests were used to examine significance differences in LSM across the organizational characteristics examined.

Results

Clinician Characteristics

Clinician characteristics at Time 0, Time 1, and Time 2 are shown in Table 1. Briefly, slightly over half of the participants were female and around half held a master's degree or higher. About 60% were Caucasian and a similar percentage were certified SUD counselors. Around 40% of participants were married and a similar percentage reported being personally in recovery from a SUD. Around 20% of the participants were current smokers. On average, participants were in their mid-forties and reported an annual income of around \$43,000.

Hypotheses

Hypothesis 1 was fully supported. As shown in Table 2, compared to Time 0, there was a significant increase in clinicians' perceptions of implementation extensiveness at Time 1 and at Time 2. Hypothesis 2 was also fully supported. In terms of clinician reported use of the tobacco cessation-related intake procedures, there was a significant increase in reported use from both Time 0 to Time 1 and from Time 0 to Time 2 (see Table 2). Full support was also found for Hypothesis 3. There was a significant increase in clinicians' reported use of guideline recommended counseling for treating tobacco dependence from Time 0 to Time 1 and also from Time 0 to Time 2 (see Table 2).

Research Questions

Research Question 1 explored differences in perceived implementation extensiveness and clinical practice behaviors to support tobacco cessation at Time 1 compared to Time 2. As shown in Table 2, there was a significant increase in perceived implementation

extensiveness from Time 1 to Time 2. By contrast, there were no significant increases in the use of the tobacco cessation-related intake procedures or guideline recommended counseling between Time 1 and Time 2.

Table 3 shows differences in clinicians' perceptions based on their organization's hospital-based status. At Time 0, clinicians working in hospital-based organizations reported significantly greater use of the tobacco cessation-related intake procedures and guideline recommended counseling than those working in non-hospital-based settings. No significant differences were found for perceived implementation extensiveness. At Time 1, only clinicians' reported use of guideline recommended counseling differed significantly based on hospital-based status, with greater perceived implementation extensiveness among clinicians working in hospital-based organizations. At Time 2, there were no significant differences in perceived implementation extensiveness, use of the tobacco cessation-related intake procedures, or use of guideline recommended counseling by hospital-based status.

Results in Table 4 display differences in clinicians' perceptions based on an organization's profit status. At Time 0, clinicians working in non-profit organizations perceived significantly higher implementation extensiveness, reported more frequent use of the tobacco cessation-related intake procedures, and greater use of guideline recommended counseling with patients. At Time 1, differences were only found in terms of reported use of the tobacco cessation-related intake procedures, with greater use among clinicians working in non-profit organizations. At Time 2, clinicians perceived significantly higher implementation extensiveness and reported greater use of the tobacco cessation-related intake procedures in non-profit organizations compared to for-profit organizations. No significant difference was found for guideline recommended counseling.

Results in Table 5 indicate differences in clinicians' perceptions based on their organization's level of care offered. At Time 0, clinicians working in organizations that offered only inpatient care had significantly lower perceptions of implementation extensiveness, use of the tobacco cessation-related intake procedures, and use of guideline recommended counseling than did clinicians offering both outpatient and inpatient care. In addition, at Time 0 clinicians working in inpatient only organizations reported significantly less use of the tobacco cessation-related intake procedures and guideline recommended counseling than did those in outpatient only care. Further, clinicians in outpatient only care perceived less implementation extensiveness than did those working in organizations that offered both outpatient and inpatient care. At Time 1, clinicians working in outpatient only organizations perceived less implementation extensiveness but reported greater use of guideline recommended counseling, compared to those working in settings offering both outpatient and inpatient care. Additionally, clinicians working in inpatient only organizations perceived less implementation extensiveness than those working in settings offering both outpatient and inpatient care. At Time 2, clinicians working in outpatient only organizations continued to perceive less implementation extensiveness compared to those working in inpatient only as well as in settings with both outpatient and inpatient care. No other differences were found at Time 2 based on level of care offered.

Post-Hoc Analyses

Despite increased perceived implementation extensiveness over time, a close examination of the LSM in Table 2 illustrates that on average, not all regulatory elements of the OASAS tobacco-free regulation are implemented. More specifically, at 10–12 months post-regulation (Time 1), clinicians perceive a LSM of 9.97 policy changes out of the 17 required. At 20–24 months post-regulation (Time 2) a LSM of 10.62 policy changes are perceived out of the 17 required. A post-hoc analysis examined the amount of variability in perceived implementation extensiveness across the organizations studied. At Time 1,

perceived implementation extensiveness ranges from a low of 3.53 to a high of 12.50 across the SUD treatment organizations included in the study. At Time 2, perceived implementation extensiveness ranges from 3.79 to 13.31 across organizations.

Further, before the passage of the regulation, on average clinicians report using tobacco cessation-related intake procedures “occasionally,” with average LSM of 3.27 for tobacco cessation-related intake procedures and 3.01 for guideline recommended counseling. Reported use is closer to “most of the time” for tobacco cessation-related intake procedures and guideline recommended counseling ($LSM = 3.85$ and $LSM = 3.65$, respectively) at 10–12 month post-regulation and 20–24 months post-regulation ($LSM = 3.93$ and $LSM = 3.65$, respectively). Because these represent the average use of clinical practice behaviors, a post-hoc analysis was conducted to explore how many clinicians are “always” using each of these clinical practice guidelines with patients. We find that 9.9% of counselors “always” (i.e., scored 5 on all 5 items) use smoking cessation-related intake procedures with patients at Time 0, 15.5% at Time 1, and 19.1% at Time 2. In addition, 7.1% of counselors “always” (i.e., scored 5 on all 8 items) use guideline recommended counseling with patients who smoke at Time 0, 12.0% at Time 1, and 15.1% at Time 2.

Discussion

An important finding from the present study is that clinicians’ perceptions of implementation extensiveness of the OASAS tobacco-free regulation increased significantly over time. In fact, over the two year window of the study there was a steady and significant increase in perceived implementation extensiveness, suggesting that the OASAS tobacco-free regulation was not only implemented but also sustained over time. We also found corresponding changes in reported use of clinical practice behaviors to support tobacco cessation from pre- to post-regulation. Moreover, clinicians sustained (but did not increase) their reported use of these clinical practice behaviors to support tobacco cessation when surveyed 2 years post regulation.

Another important finding is that some of the differences in implementation extensiveness that initially existed across treatment organizations based on hospital-based status, profit status, and level of care offered, diminished over time. Specifically, there are fewer significant 10–12 month post-regulation differences in the outcomes examined based on organizational characteristics. Moreover, even fewer significant differences are found 20–24 months post-regulation. This suggests that organizations with policies and practices that are less oriented toward tobacco cessation prior to the OASAS tobacco-free regulation begin to “catch-up” over time. This is an important finding because it suggests that the tobacco-free regulation can reach clinicians working in organizations with various characteristics and perhaps lessen differences in service delivery over time.

Findings Related to Implementation Extensiveness

Although clinicians perceive increased implementation extensiveness over time, post-hoc analyses indicate that not all regulatory elements of the OASAS tobacco-free regulation are implemented and there is great variability across organizations. This suggests that before the OASAS tobacco-free regulation passed some treatment organizations are doing very little with regard to creating a tobacco-free environment and encouraging tobacco independence among patients and staff; by contrast, other treatment organizations have many policies in place that are consistent with the OASAS regulation. It is also interesting to note that our findings diverge from those reported by Brown et al. (2012) who found that all administrators surveyed reported complete compliance with the OASAS tobacco-free regulation after it passed. This may reflect differences in how implementation was measured

across the two studies (i.e., global versus specific measure), the referent (i.e., program administrators versus clinicians), or sampling differences.

Findings Related to the Use of Clinical Practice Behaviors

It is also encouraging that the reported use of clinical practice behaviors to support tobacco cessation is significantly higher comparing pre-regulation and post-regulation data. Considering that the provision of tobacco cessation services and adoption of EBPs for tobacco cessation is generally low in SUD treatment organizations (Hunt et al., 2012; Knudsen et al., 2012; Rothrauff & Eby, 2011a, 2011b), our findings suggest that mandatory tobacco-free regulations may indeed improve service delivery. This is generally consistent with existing research on the OASAS tobacco-free regulation from both staff (Guydish et al., 2012) and administrator (Brown et al., 2012) perspectives.

Differences Based on Organizational Characteristics

Our findings are generally consistent with research demonstrating that characteristics of SUD treatment organizations can affect tobacco cessation service delivery (Guydish et al., 2012; Knudsen & Studts, 2010, 2011), although we see greater differences by organizational characteristics at pre-regulation (Time 0) compared to post-regulation (Time 1 and Time 2). It may be that clinicians working in non-profits generally report greater use of clinical practice behaviors to support tobacco cessation due to a strong public health emphasis in community-based non-profit treatment organizations (Kritz et al., 2008). It may also be that these differences reflect a mindset in non-profits that providing individualized support to marginalized patients is central to the organization's mission (Kosny & Eakin, 2008). Clinicians working in hospital-based organizations may commonly report greater use of clinical practice behaviors to support tobacco cessation due to increasing awareness of the physical health consequences of tobacco use, which may be more prominent in hospital-based settings. It is also consistent with studies on the greater adoption of NRT in hospital-based settings (Knudsen & Studts, 2011). The lower reported pre-regulation use of clinical practice behaviors in inpatient settings may be due to the longer-term and more intensive care offered in these settings, which creates unique challenges for treating tobacco dependence alongside other SUDs (e.g., stringent OASAS tobacco-free regulations may be more difficult to enforce in residential programs).

The diminished or even lack of differences based on organizational characteristics post-regulation further suggest that organizations are becoming more similar over time in light of the OASAS tobacco-free regulation. More research is needed that uses longitudinal designs or repeated cross-sectional designs to examine the myriad of other possible organizational characteristics (e.g., use of other EBPs, medical model perspective versus 12-step perspective, private versus public treatment programs) that may be differentially related to clinicians' perceptions of implementation extensiveness of tobacco-free regulations and clinical practice behaviors to support tobacco cessation over time.

Limitations and Conclusions

We note several limitations of our study. The OASAS tobacco-free regulation is broad in scope and aims to impact a wide range of practices. This study focused only on clinicians' perceptions of implementation extensiveness, reported use of the tobacco cessation-related intake procedures, and reported use of recommended guidelines for treating tobacco dependence. Important topics not examined in this study include program administrator reports of regulatory compliance, patient reports of treatment satisfaction, smoking rates of employees working in SUD treatment, and the effect of the regulation on patient quit behavior, long-term abstinence, and program enrollment. A related concern is our decision to focus on clinician perceptions of the implementation extensiveness of the OASAS

tobacco-free regulation, rather than program administrator accounts or archival organizational data (e.g., policies actually in place). We took this approach because without the cooperation of clinical staff it is unlikely that a large-scale organizational change like the OASAS tobacco-free regulation will be implemented or sustained (Amiot, Terry, Jimmieson, & Callan, 2006; Lehman, Greener, & Simpson, 2002). Clinical staff is also likely to be in the best position to report on how the policy change actually impacts their day-to-day tobacco cessation efforts with patients.

Several methodological limitations exist. Program administrators reported on the level of care offered in their treatment organization as a whole, although in some cases data were collected from multiple programs within the same parent organization. This does not likely pose interpretive concerns for the organizational variables of hospital-based status or profit status because different programs within the same treatment organization are unlikely to vary on these characteristics. However, it may introduce some “noise” in our measure of level of care offered because programs associated with the same parent organization may offer different levels of care. Moreover, our measure of level of care offered was general and did not allow us to differentiate more specific types of care associated with inpatient (e.g., inpatient detoxification, residential, inpatient psychiatric) and outpatient (e.g., methadone maintenance, outpatient non-methadone maintenance) care. Another methodological issue is that by adopting a repeated cross-sectional design we did not follow the same clinicians over time. However, had we focused only on a smaller, non-representative subsample of clinicians who remained employed at the same organization over the 2 year window, we would have excluded both clinicians hired after Time 0 and those who turned over during the course of the study. As such, our conclusions would not reflect implementation extensiveness perceptions in SUD treatment organizations in NY State, but rather whether or not the same clinicians’ perceptions change over time. Finally, SUD treatment organizations were exclusively located in NY State and were mandated to implement the changes. Other states adopting tobacco-free policies may encounter unique challenges, political climates, and environmental contexts that may affect clinicians’ perceptions and reports of the implementation process.

In conclusion, NY State offers a unique context for studying the implementation extensiveness of a mandatory tobacco-free regulation. Our findings suggest that the OASAS tobacco-free regulation is associated with changes in tobacco policies in SUD treatment organizations over time and greater reported use of clinical practice behaviors to support tobacco cessation. In addition, over time it appears as if the regulation lessens differences in treatment provision between clinicians who work in hospital- versus non-hospital-based settings, for-profit versus non-profit organizations, and settings offering inpatient only, outpatient only, and both outpatient and inpatient care. These are important findings given the difficult challenges associated with sustaining organizational change over time (Weick & Quinn, 1999) and barriers to treating tobacco dependence in SUD treatment. However, not all elements of the OASAS tobacco-free regulation are realized according to clinicians, and not all patients in need of tobacco cessation treatment are being reached. This suggests that even though the gains associated with the OASAS tobacco-free regulation are laudable, there is additional work to be done to bring about regulatory change and align clinical practice behaviors to support tobacco cessation in NYS.

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Table 1

Clinician Characteristics at Time 0, Time 1, and Time 2

Variable	Time 0	Time 1	Time 2
Female [f(%)]	203 (56.08)	275 (59.91)	303 (59.88)
Master's degree or higher [f (%)]	185 (53.16)	236 (52.10)	265 (52.58)
Caucasian [f (%)]	198 (57.39)	272 (60.85)	312 (62.40)
Certified SUD counselor [f (%)]	198 (57.06)	294 (65.19)	313 (62.73)
Married [f(%)]	145 (41.79)	185 (40.84)	204 (40.64)
In recovery [f (%)]	135 (39.82)	196 (43.65)	199 (40.95)
Current smoker [f (%)]	70 (19.83)	94 (21.96)	106 (21.46)
Age [M (SD)]	47.47 (11.85)	45.33 (12.74)	44.67 (12.90)
Annual income/1,000 [M (SD)]	43.994 (16.877)	42.387 (16.054)	43.452 (16.612)

Note. Time 0 (4 months pre-regulation) N=362, Time 1 (10–12 months post-regulation) N=462, and Time 2 (20–24 months post-regulation) N=509.

Table 2
Differences Over Time in Perceived Implementation Extensiveness of OASAS Tobacco-Free Regulation and Clinical Practice Behaviors to Support Tobacco Cessation

	Time 0		Time 1		Time 2		<i>F</i>
	<i>LSM</i>	<i>SE</i>	<i>LSM</i>	<i>SE</i>	<i>LSM</i>	<i>SE</i>	
Implementation extensiveness	5.21 ^a	.48	9.97 ^b	.46	10.62 ^c	.46	167.64 ^{***}
Tobacco cessation-related intake procedures	3.27 ^a	.08	3.85 ^b	.08	3.93 ^b	.08	42.85 ^{***}
Guideline recommended counseling	3.01 ^a	.09	3.65 ^b	.09	3.65 ^b	.08	36.36 ^{***}

Note. Time 0 (4 months pre-regulation) *N* = 362, Time 1 (10–12 months post-regulation) *N* = 462, Time 2 (20–24 months post-regulation) *N* = 509. *LSM* = least square means. *LSM* with different superscripts are significantly different at $p < .05$.

 $p < .001$.

Table 3

Differences by Hospital-Based Status

	Not Hospital		Hospital		<i>F</i>
	<i>LSM</i>	<i>SD</i>	<i>LSM</i>	<i>SD</i>	
Time 0 (Not hospital N=259; Hospital N=103)					
Implementation extensiveness	5.53 ^a	5.14	5.17 ^a	3.43	.44
Tobacco cessation-related intake procedures	3.08 ^a	1.11	3.55 ^b	1.04	11.59 ^{***}
Guideline recommended counseling	2.79 ^a	1.17	3.46 ^b	1.15	20.69 ^{***}
Time 1 (Not hospital N=379; Hospital N=83)					
Implementation extensiveness	10.38 ^a	4.53	9.52 ^a	4.33	2.50
Tobacco cessation-related intake procedures	3.82 ^a	.98	3.97 ^a	.92	1.69
Guideline recommended counseling	3.58 ^a	1.03	3.85 ^b	1.00	4.46 [*]
Time 2 (Not hospital N=365; Hospital N=99)					
Implementation extensiveness	11.27 ^a	4.57	10.38 ^a	4.39	2.95
Tobacco cessation-related intake procedures	3.95 ^a	.96	3.86 ^a	1.00	.65
Guideline recommended counseling	3.63 ^a	1.12	3.68 ^a	1.11	.14

Note. LSM = least square means. LSM with different superscripts are significantly different at $p < .05$.

* $p < .05$;

*** $p < .001$.

Table 4

Differences by Profit Status

	For-Profit		Non-Profit		<i>F</i>
	<i>LSM</i>	<i>SD</i>	<i>LSM</i>	<i>SD</i>	
Time 0 (For-Profit N=98; Non-Profit N=264)					
Implementation extensiveness	2.84 ^a	3.63	6.39 ^b	4.72	45.45 ^{***}
Tobacco cessation-related intake procedures	2.74 ^a	.95	3.39 ^b	1.11	22.89 ^{***}
Guideline recommended counseling	2.38 ^a	.98	3.21 ^b	1.20	33.36 ^{***}
Time 1 (For-Profit N=101; Non-Profit N=361)					
Implementation extensiveness	10.33 ^a	4.24	10.20 ^a	4.58	.07
Tobacco cessation-related intake procedures	3.54 ^a	.89	3.92 ^b	.98	11.05 ^{**}
Guideline recommended counseling	3.49 ^a	1.06	3.66 ^a	1.02	1.99
Time 2 (For-Profit N=114; Non-Profit N=359)					
Implementation extensiveness	10.79 ^a	4.49	11.80 ^b	4.54	4.95 [*]
Tobacco cessation-related intake procedures	3.76 ^a	.94	4.00 ^b	.97	5.68 [*]
Guideline recommended counseling	3.63 ^a	1.13	3.65 ^a	1.12	.03

Note. LSM = least square means. LSM with different superscripts are significantly different at $p < .05$.

* $p < .05$;

** $p < .01$;

*** $p < .001$.

Table 5

Differences by Level of Care Offered

	Outpatient		Inpatient		Both Outpatient & Inpatient		F
	LSM	SD	LSM	SD	LSM	SD	
Time 0 (Outpatient only N=104; Inpatient only N=113; Both N=104)							
Implementation extensiveness	4.57 ^a	3.50	4.11 ^a	4.80	7.21 ^b	5.19	14.34 ^{**}
Smoking cessation-related intake procedures	3.57 ^a	.99	2.92 ^b	1.06	3.28 ^a	1.16	8.81 ^{***}
Guideline recommended counseling	3.39 ^a	1.16	2.63 ^b	1.19	3.06 ^a	1.17	10.03 ^{***}
Time 1 (Outpatient only N=111; Inpatient only N=87; Both N=264)							
Implementation extensiveness	9.23 ^a	4.78	9.61 ^a	4.34	10.84 ^b	4.35	6.13 ^{**}
Smoking cessation-related intake procedures	3.93 ^a	.84	3.90 ^a	.98	3.79 ^a	1.02	.86
Guideline recommended counseling	3.84 ^a	.92	3.70 ^{a,c}	.98	3.51 ^c	1.07	3.94 [*]
Time 2 Outpatient only (N=160; Inpatient only N=131; Both N=182)							
Implementation extensiveness	9.86 ^a	4.44	12.26 ^b	4.44	11.35 ^b	4.40	11.10 ^{***}
Smoking cessation-related intake procedures	3.88 ^a	.92	3.87 ^a	.95	4.03 ^a	1.03	1.25
Guideline recommended counseling	3.65 ^a	1.18	3.63 ^a	1.08	3.64 ^a	1.09	.01

Note. LSM = least square means. LSM with different superscripts are significantly different at $p < .05$.

* $p < .05$;

** $p < .01$;

*** $p < .001$.